



# Natural Resources NOTES

Number 1

Information from the Department of National Defence -  
Canadian Forest Service Natural Resources Program.

2003

## *Daphne laureola*

**D***aphne is a toxic shrub from Mediterranean Eurasia. It has been introduced to other countries where it out-competes native vegetation. Pre-adaptations to the Mediterranean climate allow Daphne to invade and take over shady woodlands in southwestern BC. Daphne has become increasingly noticeable in a variety of habitats; there is concern that it threatens the Garry oak ecosystem and other forest landscapes.*



*The Garry Oak ecosystem also supports infestations of Daphne.*

### What is Daphne?

*Daphne laureola* L., also known as spurge laurel, false laurel, or Daphne laurel, is a long-lived, slow growing, evergreen shrub. Plants can live longer than 40 years and rarely grow taller than 1.5 m. Young plants usually have one vertical stem with several lateral branches; the majority of vertical growth is achieved in the first 10 to 15 years. Older plants have a variable number of branches arising from ground level. Branches readily sprout from the base of older stems, often growing horizontally for a short distance before turning upwards. Leaves are clustered in whorls at the end of each branch. Flowers bloom in clusters at the tips of branches in late winter to early spring and develop into black berries by early summer.



*Daphne berries*

Daphne favours moist, shady areas, with well-drained soil. Under ideal conditions, it forms a dense shrub layer. Daphne has the ability to grow in a wide variety of habitats; plants have been found growing beside a salt marsh and in full sun just above the upper intertidal zone.

## Origin and Spread of Daphne

Like many exotic invasive species, Daphne is native to Eurasia; historically distributed in west, central, and southern Europe, Northern Africa and the Azores. In some of these areas, particularly in Bulgaria, Daphne is considered a species-at-risk due to habitat loss.

Cultivated for attractive foliage and shade tolerance, Daphne was introduced to North America as an ornamental. However, horticultural plantings of the shrub pose a great threat to nearby forests. Rodents and birds eat Daphne fruits and spread seeds into natural areas.

Long distance dispersal complicates containment and control of infestations. Presently Daphne has become naturalized in southwestern Canada and Washington State. In Washington, researchers would like Daphne listed as a noxious weed.



*Daphne laureola* competes with native vegetation.

## Is Daphne a Problem?

The species is pre-adapted to Mediterranean climates and grows well on southeastern Vancouver Island, BC. The potential impact of Daphne on the endangered Garry oak ecosystem is of great concern.

Dense mono-specific stands of Daphne modify habitat and can potentially reduce or interfere with native biodiversity. These dense stands affect the growth of other plants by reducing the amount of light reaching the forest floor. Such changes in habitat structure and plant composition may negatively affect animal use of the habitat.

Daphne contains a number of poisonous compounds. Contact with the sap can cause skin irritation and blistering. Consumption of any part of the plant, including the berries, can lead to death from amounts as small as 30 g of bark or 10 berries. This toxicity complicates Daphne removal because burning, brush sawing, or chipping releases noxious chemicals into the air. These chemicals also prevent browsers from eating Daphne.

## How Can the Spread of Daphne be Prevented?

- Detect early and promptly control Daphne in newly infested areas.
- Do not plant Daphne in gardens.
- Educate people about the danger that Daphne poses to plant diversity in forests.
- Remove young Daphne plants before they flower and set seed.
- Remove mature plants to stop seed production.

## How is Daphne Controlled?

Daphne is difficult to remove from a site, especially once it is well established. Stumps, seeds and possibly root fragments can re-sprout and grow new plants. To ensure an area remains Daphne-free, continued monitoring and a combination of removal treatments is necessary. Control methods include:



*Daphne leaves*

- Uprooting the plant. This is relatively easy for small plants, but may require a tool for larger plants. Plants are most easily uprooted in the rainy season when the ground is damp.
- Applying an herbicide to the cut stump. Daphne is killed by triclopyr; other herbicides have not been tested yet. A bioherbicide is currently being tested.
- Hand or mechanical cutting is not recommended because it results in extensive re-sprouting from the cut stump. A previously cut plant is also harder to uproot. Mechanical cutting such as with a brush-saw is highly discouraged due to the release of toxic chemicals causing respiratory irritation.

## What is Being Done?

The Canadian Forest Service is:

- Studying the rate of Daphne invasion into unaffected areas.
- Determining effective methods for removing and controlling Daphne invasions.
- Tracking the life history of Daphne to identify critical times when the plants are most susceptible to control methods.
- Informing the public and land managers about the threat of Daphne.

## Conclusion

Daphne is a problem that will only become worse without management. It is important that Daphne is recognized as a threat to biodiversity and the Garry oak ecosystem. Spread of Daphne must be controlled; reducing horticultural plantings and preventing the spread of current invasions can do this.

## For more information

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